**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1. (Currently amended) A method for determining ~~the~~ a cardiac output of a patient, wherein the patient's respiration cycle is determined and an indicator is injected into the patient's bloodstream over a period of ~~at least~~ substantially one respiration cycle and an injected amount of indicator is established, wherein ~~the~~ a change in ~~the~~ an indicator value in the bloodstream downstream of the injection point is integrated~~measured~~ over a measurement period ($T_1$) of a number (n) of respiration cycles, ~~and the injected amount of indicator is established, wherein the cardiac output is determined on the basis of the measured change in the indicator value, the amount of indicator injected into the blood and the initial value thereof, characterized in that~~ a first variation in the indicator value is integrated~~measured~~ over ~~at least~~ substantially ~~the~~a period ($T_2$) of one respiration cycle~~, preferably directly~~ prior to the injection, ~~and in that the change in the indicator value caused by the injection is determined on the basis of the difference between the change in the indicator value measured over a period of n times that of the first variation and n times the measured first variation~~and a second variation in the indicator value is integrated over a period ($T_3$) of substantially one respiration cycle after the measurement period ($T_1$), wherein an average of the first and the second integrated variations is determined, and wherein the change in the indicator value caused by the injection is determined on the basis of a difference between the change in the indicator value integrated over said measurement period ($T_1$) and n times the average of the integrated first and second variations, wherein the cardiac output is determined on the basis of the thus determined change in the indicator value, an amount of indicator injected into the blood and an initial value thereof.

2. (Currently amended) A method according to claim 1, wherein ~~a second variation in the indicator value is measured over a period of at least substantially one respiration cycle, preferably directly contiguous to the measurement of the change in the indicator value, wherein the average of the first and the second variation is determined, which average is used for~~

~~determining the change in the indicator value rather than the first variation~~ the first variation in the indicator value is measured directly prior to the injection.

3. (Currently amended) A method according to claim 1 ~~or 2~~, wherein ~~the arterial blood pressure signal is measured, wherein the values of the stroke volume and of the cardiac output over a period of one heartbeat are calculated over a period corresponding to the number (n) of respiration cycles, wherein the average of the calculated values is determined, and wherein a proportionality constant is computed from a comparison of the average output value thus calculated and the cardiac output value determined on the basis of the change in the indicator value, after which the stroke volume and the cardiac output are multiplied by the computed proportionality constant~~ the second variation in the indicator value is measured directly contiguous to the measurement period ($T_1$).

4. (Currently amended) A method according to claim 1~~3~~, wherein ~~the determination of the cardiac output from the change in the indicator value is repeated periodically by carrying out a new injection and computing the proportionality constant~~ an arterial blood pressure signal is measured, wherein values of the stroke volume and of the cardiac output over a period of one heartbeat are calculated over a period corresponding to the number (n) of respiration cycles, wherein the average of the calculated values is determined, and wherein a proportionality constant is computed from a comparison of the average output value thus calculated and the cardiac output value determined on the basis of the change in the indicator value, after which the stroke volume and the cardiac output are multiplied by the computed proportionality constant.

Claims 5-7 (Canceled)

8. (New) A method according to claim 4, wherein the determination of the cardiac output from the change in the indicator value is repeated periodically by carrying out a new injection and computing the proportionality constant.

9. (New) Apparatus for determining cardiac output of a patient, which apparatus comprises a processing unit having a control output for controlling injection means, a first sensor for measuring a change in an indicator value in the patient's bloodstream and a second sensor for determining the patient's respiration cycle, wherein the processing unit is arranged for establishing an injected amount of indicator, and for integrating a change in the indicator value in the bloodstream downstream of an injection point over a measurement period of ($T_1$) of a number (n) of respiration cycles, for integrating a first variation of the indicator value over a period ($T_2$) of substantially one respiration cycle prior to an injection, and for integrating a second variation in the indicator value over a period ($T_3$) of substantially one respiration cycle after the measurement period ($T_1$), wherein the processing unit determines an average of the first and the second integrated variations, wherein the processing unit is further arranged for determining a change in the indicator value resulting from the injection on the basis of the difference between the change in the indicator value integrated over said measurement period ($T_1$) and n times the average of the integrated first and second variations, and wherein the processing unit is arranged for determining the cardiac output on the basis of the thus determined change in the indicator value, an amount of indicator injected into the blood and an initial value thereof.

10. (New) Apparatus according to claim 9, wherein the processing unit is arranged for measuring the first variation in the indicator value directly prior to the injection.

11. (New) Apparatus according to claim 9, wherein the processing unit is arranged for measuring the second variation in the indicator value directly contiguous to the measurement of the change in the indicator value.

12. (New) Apparatus according to claim 9, comprising a third sensor for measuring an arterial blood pressure signal, wherein the processing unit is arranged for calculating values of a stroke volume and of the cardiac output over a period of one heartbeat over a period corresponding to the number (n) of respiration cycles, wherein an average of the calculated values is determined, wherein the processing unit compares the average cardiac output value thus

calculated and the cardiac output value determined on the basis of the change in the indicator value and computes a proportionality constant, after which the processing unit multiplies the stroke volume and the cardiac output computed from the arterial blood pressure signal by the computed proportionality constant.